

**REMARKS**

The Examiner provides a number of rejections and we list them here in the order in which they are addressed:

- I. Claims 1, 3, 5-6 and 10-13 are rejected under 35 USC § 102(e) as allegedly being anticipated by United States Patent 5,922,591 To Anderson *et al.*
- II. Claims 1, 3, 5-6 and 10-13 are rejected under 35 USC § 103 as allegedly being obvious over United States Patent 5,922,592 To Anderson *et al.*
- III. Claims 1, 3, 5-6 and 10-13 are rejected under 36 USC § 103 as allegedly being obvious over United States Patent 6,319,469 To Mian *et al.*
- IV. Claims 1, 3, 5-6, 8 and 10-13 are objected to for informalities.
- V. Claim 8 is rejected under 35 USC § 112 ¶ 1 as allegedly being indefinite.

**I. The Claims Are Not Anticipated By Anderson *et al.***

As the Examiner is well aware, a single reference must disclose each limitation of a claim in order for that reference to anticipate the claim. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 224 U.S.P.Q. 409, 411 (Fed. Cir. 1984). As noted previously, this criterion is not met with the Anderson *et al.* reference.

Specifically, the Examiner states that Anderson *et al.* teaches "A porous hydrophobic portion ... in a channel intermediate an inlet and a vent ..." (which it does not). *Office Action*, pg. 3. The Applicants disagree and submit that the only teaching of a hydrophobic portion in Anderson *et al.* is limited to the terminal end of a channel, wherein the hydrophobic portion of Anderson *et al.* is the vent.

Nevertheless, in order to clarify one embodiment of the present invention and without acquiescing to the Examiner's argument but to further the prosecution, and hereby expressly reserving the right to prosecute the original (or similar) claims, Applicants have amended

Claim 1 and Claim 6 to describe "first and second side channels attached to a microdroplet transport channel etched in substrate so as to create first and second intersections" and that these side channels have hydrophobic surfaces. As specifically recited in the claim, this embodiment comprises "a hydrophobic region and liquid abutting said hydrophobic region, said liquid extending through said first intersection without entering said first side channel". In this respect, the claimed embodiment comprises three hydrophobic regions such that at least one hydrophobic region is positioned in the microdroplet transport channel between the first and second hydrophobic side channels. The Applicants point out that Anderson *et al.* does not teach this novel configuration and therefore not all of the elements of the Applicants' presently claimed embodiment are disclosed.

The Applicants respectfully request the Examiner withdraw this rejection.

## **II. The Claims Are Not *Prima Facie* Obvious**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ.2d 1438 (Fed. Cir. 1991); and MPEP § 2142; Establishing A *Prima Facie* Case Of Obviousness. The Examiner is reminded that if ONLY ONE of the above requirements is not met, then a *prima facie* case of obviousness does not exist. In the present Office Action, the Applicants clearly demonstrate that the Examiner's rejection does not meet these criterion. The Applicants rebut the establishment of a *prima facie* case of obviousness by the arguments below.

The Examiner asserts two obviousness rejections (*i.e.*, Anderson *et al.* and Mian *et al.*) individually. The Applicants, therefore, refute these rejections individually.

### **A. Anderson *et al.* Fails To Teach All The Elements**

The Applicants disagree with the Examiner and argue that Anderson *et al.*, standing alone, does not make the Applicants' claimed embodiment obvious. The Examiner is reminded that Anderson *et al.* provides no teaching of a device comprising at least three hydrophobic regions wherein at least one hydrophobic region is located between first and

second hydrophobic side channels (*supra*). As such, Anderson *et al.* does not teach or suggest all the claim limitations.

**B. Mian *et al.* Fails To Teach All The Elements**

The Applicants disagree with the Examiner and argue that Mian *et al.*, standing alone, does not make the Applicants' claimed embodiment obvious. As with Anderson *et al.*, Mian *et al.* provides no teaching of a device comprising at least three hydrophobic regions wherein at least one hydrophobic regions is located between first and second hydrophobic side channels (*supra*). As such, Mian *et al.* does not teach or suggest all the claim limitations.

**C. Unobvious Advantages**

The presently claimed embodiment encompasses a unique device with functional advantages. This design configuration, therefore, is not arbitrary. As the text regarding Figure 3 in the Applicants' specification explains (See pg. 22 ln 12-26), this configuration allows precise control over the size (L) of microdroplets. In this manner, the parameters of the reactions occurring within the device may be controlled.

**D. Conclusion**

The Applicants now respectfully request the Examiner withdraw the present rejections based upon both Anderson *et al.* and Mian *et al.* Neither reference teaches a device comprising at least three hydrophobic regions wherein at least one hydrophobic region is located between first and second hydrophobic side channels. The Examiner should note that a new, voluntary dependent claim (Claim 14) has been added defining the size of the microdroplet transport channel. Further, the Examiner is requested to note the cancellation of Claims 3, 5, 8 and 11 to accommodate the present amendments. The Applicants now respectfully request the Examiner to withdraw these rejections.

**III. The Claims Have No Informalities**

The Examiner's objections to the claims are rendered moot as a result of amendments to Claims 1, 6 and 13 and cancellation of Claims 3, 5, 8 and 11.

**IV. Claim 8 Is Not Indefinite**

The Examiner's rejection of Claim 8 based upon 35 USC § 112 ¶ 1 is rendered moot as a result of the cancellation of Claim 8 (*supra*).

**CONCLUSION**

The Applicants believe that the arguments and claim amendments set forth above traverse the Examiner's rejections and, therefore, request that all grounds for rejection be withdrawn for the reasons set above. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, the Applicants encourage the Examiner to call the undersigned collect at 617.984.0616.

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